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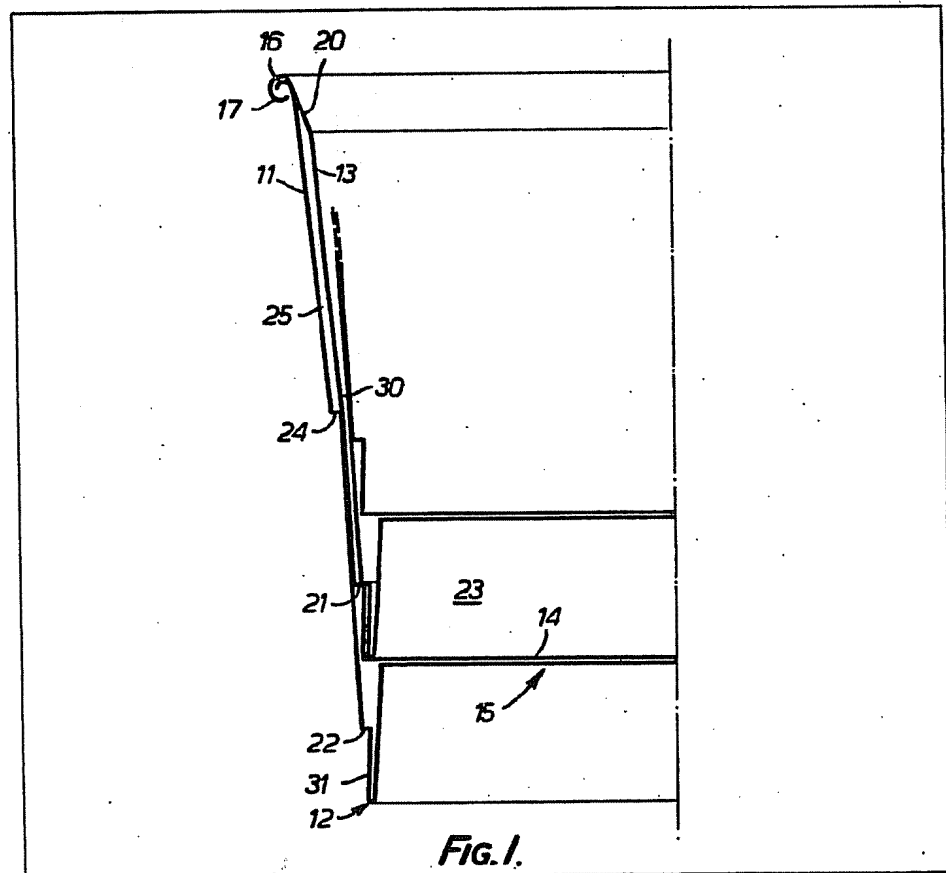
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## (54) Drinking cups

(57) A double-walled drinking cup assembled from two vacuum formed sheet plastics components (11 and 13) has a recess (23) formed by the base (15) of the outer component for the accommodation of coffee powder on the bottom (14) of a similar cup in which the said cup is nested. Seals between the recess space and atmosphere may be provided at one or two places where a downwardly facing annular surface on the outer component of the upper cup is seated on an upwardly facing surface on the inner component of the lower cup. A heat insulating gripping ring may be provided at 25 in Fig. 1, or 27 in Fig. 2, not shown.



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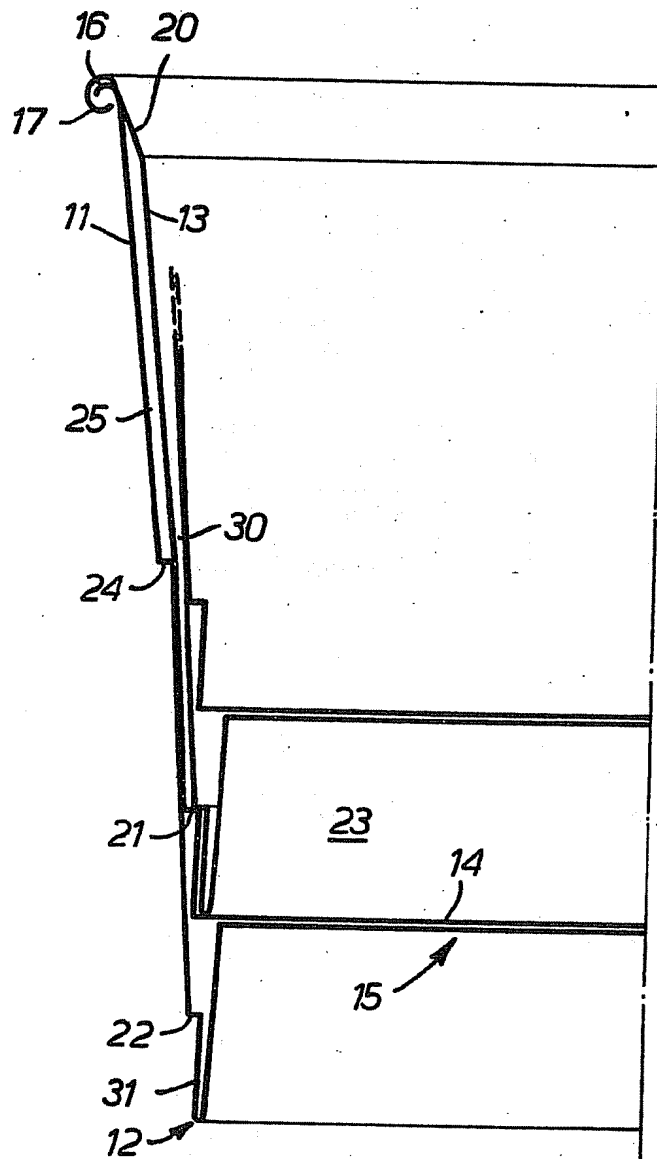


FIG. I.

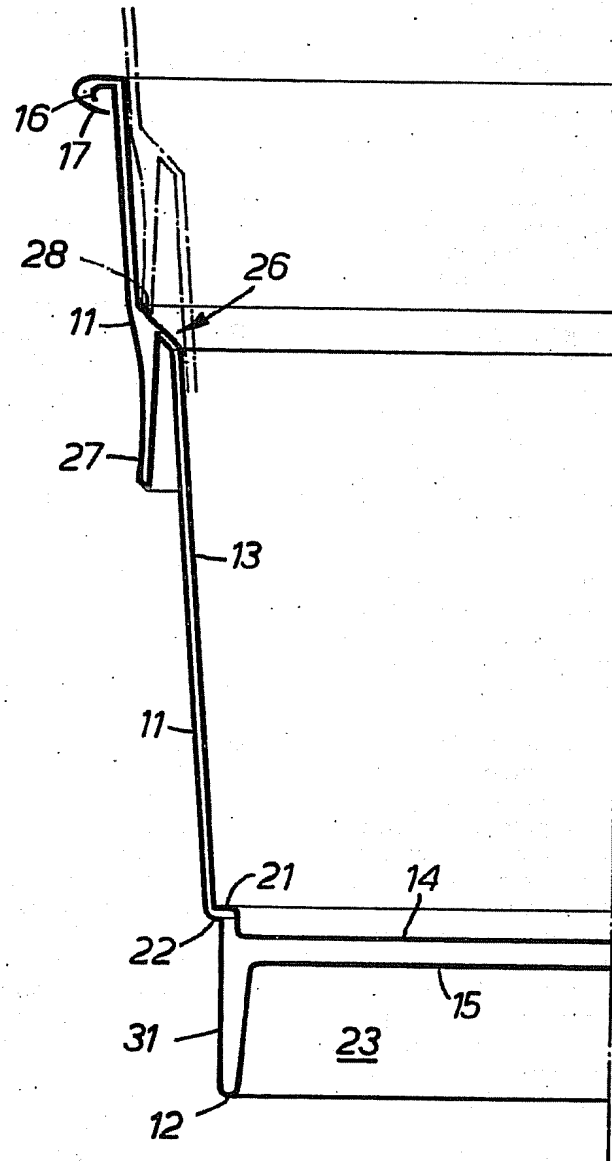


FIG. 2.

## SPECIFICATION

### Drinking cups.

- 5 This invention relates to drinking cups for example cups which can be stacked together leaving a space between the bottoms of adjacent cups for coffee powder or some other drink making ingredient, enabling a drink to be made merely by pouring boiling water on the ingredient which is already in the cup when it is detached from the stack.

- 10 Although the invention may be applicable to single walled drinking cups, it is particularly applicable to double-walled drinking cups, for example thermo-formed from sheet plastics material, in which the inner wall and the outer wall do not have to correspond in shape with each other.
- 20 According to one aspect of the present invention, a double-walled drinking cup is formed from inner and outer components of which the outer component has a side wall and a bottom which is recessed upwardly from the lower edge of the side wall to define a space for an ingredient for making a drink in a cup in which the said cup is to be stacked or is stacked.

- 30 The recess provides a very convenient space for storing the ingredient and the bottoms of the two cups do not have to come close to each other because the walls of the two components do not have to conform strictly with each other.

- 35 Thus, it is possible to form the inner and outer components so that when an upper cup nests in a lower cup, a lower stacking surface on the upper cup, for example at the bottom rim of the side wall, or at the lower side of a shelf in the side wall, can be seated on an upwardly facing surface perhaps in the inner wall of the inner component, to effect an approximate seal to protect the space within the recess from atmosphere which could degrade the ingredient powder. It is also possible to design the cup so that another part of the surface of the upper cup comes against another part of the surface of the lower cup to effect a second seal.

- 50 The two side walls of the two components may be plain and possibly in contact with each other over part of the height of the cup, for example to provide a fairly rigid surface on which descriptive matter can be printed, but then there may be an insulating portion formed in a part only of the side wall, so that the user will not burn his fingers when the cup is holding a hot drink. That may be formed by having a greater space between the side walls of the two components at a localised part of the height of the side wall, or could perhaps be formed by forming the outer component with a folded portion in its side wall which is spaced from the rest of the side wall and provides a finger gripping ring.

According to another aspect of the invention the ingredient is stored in the cups in a stack of cups in a recess in the base of the cup or the outer wall of the cup while the cup is inverted, and then another inverted cup is placed over the first cup and the ingredient and co-operating surfaces on the two cups seal the recess space to protect the ingredient from the atmosphere.

- 70 According to another aspect of the invention a double-walled cup has an air insulating space between two walls of the cup near the top which is wider than the space between two walls of the cup further down the body of the cup.

The invention may be carried into practice in various ways, and two embodiments will be described by way of example with reference to the accompanying drawings, in which:-

- 85 *Figure 1* is a sectional elevation of half of a pair of nested cups constituting a first embodiment of the invention; and

- Figure 2* is a similar elevation of a cup constituting a second embodiment of the invention.

The cups being described by way of example are vacuum formed from high impact sheet polystyrene although other plastics materials could be used.

- 95 In the version shown in *Fig. 1*, a double-walled, throw-away, drinking cup has an outer component 11 defining a stepped frusto-conical side wall leading to a depending rim 12 on which the cup can stand, and a recessed bottom 15. The side wall has two steps formed by upper and lower horizontal shelves 24 and 22. The inner component 13 also has a frusto-conical side wall with a lead in portion 20 at its upper edge, a horizontal shelf 21 and a horizontal bottom 14 which, when the components are assembled, is either in contact with or slightly spaced above the recessed bottom 15 of the outer component. The components are held together by curling the upper edge 17 of the inner component 13 around an external flange 16 at the top of the outer component 11.

- The shelf 21 in the inner component 13 is spaced above the bottom 14 to provide a seat 115 for the lower shelf 22 in the outer wall of an identical upper nested cup partly shown in *Fig. 1*. The shelf 22 is spaced at such a distance above the depending rim 12 of the second cup that when the shelf 22 of the upper cup seats on the shelf 21 of the lower cup, the depending rim 12 of the upper cup seats on the base 14 of the lower cup, to form an approximate double seal between the space 23 defined within the recessed bottom 15 and the region 30 between the inner side wall 13 of the lower cup and the outer side wall 11 of the inner cup, which region is exposed to the atmosphere.

Thus, the region 23 can accommodate an ingredient such as coffee powder for making a

drink which will be sealed from the atmosphere for a reasonable time.

The shelf 24 is approximately half way up the outer wall 11 and provides radial separation 25 between the upper portions of the outer and inner walls 11 and 13. This provides a well insulated region by which a user can grip the cup when holding a hot drink without burning his fingers.

In the cup of Fig. 2, there are some further refinements. The outer wall 11 is frusto-conical side wall leading to a depending rim 12 and a recessed bottom 15. However, in this embodiment the shelf 24 is replaced by a doubled-walled portion 27. The inner wall 13 is generally frusto-conical wall with a lead in portion 26 at an angle of about 45° to the horizontal just above the double-walled portion 27. The shelf 21 and bottom 14 are slightly above their counterparts 22 and 15 in the outer wall.

The double-walled portion 27 is formed by causing the outer wall material to fold back on itself and then to fold back downwards to give an insulated finger gripping section in the upper half of the cup and spaced outwardly from the general cone of the side wall.

In this second embodiment when cups are nested together, the depending rim 12 of the upper cup sits on the shelf 21 of the lower cup forming a seal for the space 23, and the doubled back portion 27 of the second cup fits into the uppermost part above the lead-in portion 26 of the lower cup to provide a second seal at 28.

In forming a stack of such cups, what will be an upper cup is inverted and an ingredient for making a drink is poured into the space 23 within the bottom 15 and then what will be a lower cup is placed over the first cup so that the ingredient is protected from the atmosphere by the sealing between the cups.

The bottom of the side wall of the outer component of the cup of Fig. 1 or that of Fig. 2, may be slightly frusto-conical, or cylindrical, or even slight divergent downwards so that it can sit on the shelf 21 of the lower cup without causing jamming between the cups. A similar non-jamming, stacking effect can be achieved at the doubled-back portion 27 of the cup of Fig. 2.

However, there may be applications where some latching or slight jamming occurs so that a lower cup does not fall freely from a stack when released, but has to be slightly pulled from the stack.

#### CLAIMS

1. A double-walled drinking cup formed from inner and outer components in which the outer component has a side wall and a bottom which is recessed separately from the lower edge of the side wall to define a space for an ingredient for making a drink in a cup in which the said cup is to be stacked.

2. A cup as claimed in Claim 1 which has in the outer component a downwardly-facing surface which can seat on an upwardly facing surface on the inner component of a similar cup within which the said cup is nested to be supported and to effect an approximate seal between the space in the recess and surrounding atmosphere.

3. A cup as claimed in Claim 2 which in the outer cup a second downwardly facing surface which can seat on an upwardly facing surface on the inner component of a similar cup within which the said cup is nested to effect a second seal between the recess space and the atmosphere.

4. A cup as claimed in any of the previous claims in which the side-wall has a localised insulated portion.

5. A cup as claimed in Claim 4 in which the localised insulating portion is formed by virtue of a greater displacement between the inner and outer components at one part of the side wall than is prevalent for the remainder of the side wall.

6. A cup as claimed in Claim 4 in which the localised insulating portion is formed by a fold in material forming the side wall of the outer component.

7. A drinking cup constructed and arranged substantially as herein specifically described with reference to Fig. 1 or Fig. 2 of the accompanying drawings.

8. Two or more cups each as claimed in any of the previous claims which are nested together to form a stack with a drink making ingredient in the recess space of at least some of the cups.

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